

## Towards an Islamic Macro Model of Distribution: A Comparative Approach

**MABID ALI AL-JARHI**

*Department of Research and Statistics  
Arab Monetary Fund, Abu Dhabi, U.A. F.*

### **Introduction**

This paper\* presents some ideas on the construction of a macro- distribution model of an Islamic economy. It introduces a model based on the concept that in the Islamic (in contrast to Muslim) society, most Muslims are propertied, though to different degrees, because of the application of *zakah*. This implies two important propositions. *First*, the study of distribution is inseparable from that of redistribution. *Second*, the distinction in saving behavior between "capitalists" and "laborers" becomes immaterial.

The results of the model indicate no predominance of the behavior of any particular class to the determination of either factor shares, or profit rate.

The results of the model also indicate that an Islamic economy would have higher growth, higher return on capital and more equitable distribution of wealth than a western economy of the Kaldor-Pasinetti type.

### **I. Western Approaches to Distribution**

The Western thought on capital, growth and distribution is divided between traditionalists and non-traditionalists. The traditional approach encompasses the classical, the Marxist and the Austrian theories, while the non-traditional includes neoclassics and the post- Keynesians.

---

\* An earlier version of the paper was presented to the Second International Conference on Islamic Economics (Islamabad, March 1983). The author benefited from Ausaf Ahmad's paper (1982), the comments of Sayed Taher of the Islamic University, Islamabad, and of other conference participants. I am also grateful for the comments of Ibrahim Ibrahim, the editorial assistance of Mrs. Fatema Bashier, and the typing efforts of Mrs. Elham Ghosheh, all at the Arab Monetary Fund. Two anonymous referees also contributed substantial comments which assisted in correcting some errors. The author is grateful for their assistance.

### A. *The Traditional Approach*

The following review of the traditional approach will be limited to the Austrian and the Marxist theories, since it would be rather difficult to provide a compact description of classical theory of capital.

#### 1. *Factors Affecting Distribution*

The traditionalists apply a choice-theoretic structure to the allocation of resources. Yet, distribution is determined by extra-economic variables. The society is assumed to be divided into socio economic classes, namely, workers, capitalists and sometimes landlords. The social behavior embedded in the structure of each class determines the long-run distribution of output.

The size of the working class is assumed to depend upon the real wage. Workers' social behavior is such that they do not save. Instead, when their real wage rises above subsistence, their natural rate of growth increases, until the real wage rate is brought back through competition to subsistence.

The capitalist class does all the saving. They provide capital for the industry. Their social behavior is such that larger profits imply greater saving. Landowners receive rent on their property which is determined by the differentials between the degrees of fertility of different plots.

#### 2. *The Concept of Capital*

The traditionalists viewed production as a result of using labor only, or labor and land. Capital was considered neither fixed nor durable, but rather circulating and continuously reproduced. It is composed of "stored-up subsistence" owned by capitalists which would permit advances to laborers, landowners and capitalists" (Stigler, 1968: 275).

#### 3. *The Marxist Approach*

The original Marxist approach contains ambiguity and uneven rigor. However, the main propositions of Marx have been recently restated in a less ambiguous and more rigorous fashion (von Neumann, 1945-1946, Morishima, 1971; and Brown, Sato and Zarembka, 1976: 240-269). Marx stressed the extra-economic variables influencing distribution in a capitalist economy<sup>(1)</sup>. He intertwined the classical concepts of socio economic classes with Hegelian dialectics to produce a distribution theory based on dialectical materialism.

Marx offered two important postulates: the inverse association between profits and wages; and between capital growth and means of subsistence (consumption per worker). Yet, he was only vaguely aware of how the two propositions are related (Marx, 1968: 94 and 218).

---

1. Marx's writings show no awareness of economic systems outside the western historical experience, which he confused with human experience as a whole, regarding nonwestern systems as either primitive or barbaric.

Marx's arguments related to those propositions implied two assumptions. First, defining the *maximum attainable real wage rate* as the rate which would prevail if all profit disappeared from every industry, and the *rate of exploitation* as the difference between the maximum attainable and the actually paid wage: he assumes that the rate of exploitation is determined sociologically through class struggle. This is tantamount to assuming constant (actual) real wage rate.

Second, he assumed workers savings to be zero, equating consumption per worker to the real wage rate. As a result of the consumption-investment relationship implicit in his postulate on capital growth and means of subsistence, the rate of growth which corresponds to the prevailing wage rate must equal the rate of profit, provided that capitalists do not consume. Both the rate of growth and the rate of profit are positive if and only if the rate of exploitation is positive.

An important aspect of the Marxist model, of which Marx himself was not aware, is the implicit assumption of *indecomposability* of the system.

Marx's first postulate of a negative relationship between profits and wages can be translated into a relationship between the uniform equilibrium rate of profit and the real wage rate, that is a factor-price or a wage-profit frontier<sup>(2)</sup>. The inverse relationship between capital growth and consumption can be interpreted as a relationship between the rate of growth and the level of consumption, or the consumption-investment frontier.

Morishima (1971) has established the dual relationship between both frontiers<sup>(3)</sup>. He also showed that Marx conclusions require that both frontiers are *unique and identical* with each other. This holds true only for indecomposable economies. Decomposable economies, in contrast, have many consumption-investment frontiers, each of which is associated with a corresponding wage-profit frontier. This more general case has many equilibrium rates of profits and rates of growth, where the highest equilibrium rate of growth on any consumption-investment frontier is equal to the highest rate of profit on the *corresponding* wage profit frontier. Obviously, Marx model is only a very special case.

A general equilibrium condition for the classical model is that the rate of balanced growth  $g$ , which is a function of the real wage rate  $w$ . and the (natural) rate of growth of the labor force,  $n$ , must be equal, or

$$g(w) = n \quad (1)$$

Since the assumption of constant  $n$  could render (1) insolvable,  $n$  has been made positively dependent on  $w$ , so that  $n$  would be negative when  $w = 0$ ,  $n = 0$  when  $w$  is at subsistence, and  $n > 0$  when  $w$  is above subsistence, which makes

$$g(w) = n(w) \quad (2)$$

---

2. This frontier could have, under certain conditions. what is called reswitching.

3. This is an extension of Bruno (1969) and consistent with Kemeny et al (1956). see Brown, Sato and Zarembka (1976).

With this specification, Morishima (Brown, Sato and Zarembka, 1976) has shown that both  $g$  and  $n$  are positive if and only if the subsistence real wage is lower than the wage rate. In other words, under the very special case of the Marxist *indecomposable* economies, exploitation is necessary for the capitalist economy to have a balanced growth.

It is noteworthy that the model is built in real terms, where money plays no specific role. There is no reason for the holding of money by individuals to be rational. It is, therefore, a barter growth model which in some mysterious fashion, manages to conduct all transactions at no cost and with no medium of exchange. The rate of interest in real or monetary sense plays no role.

#### 4. The Austrian Approach

The Austrian approach is another trend which evolved in reaction to Marxist thought<sup>(4)</sup>. The role of capital (as known to the classics) is, according to this school, to permit the use of *roundabout* methods of production (Stigler, 1968: 201-19). Those methods are claimed to be more productive than direct or non-capitalistic methods. Capital intensity can thus be increased by increasing the degree of roundaboutness (Hicks, 1973: 6-8; Hayek, 1941: 41-49). The (average) *period of production* measures the length of roundaboutness.

As restated by Wicksell (1901; Stigler, 1968), if real output is  $y$ , real wage rate is  $w$ , period of production is  $t$  and rate of interest is  $r$ , then the annual product per worker  $p$  is equal to  $\frac{Y}{t}$ , and

$$P = W \left( 1 + \frac{rt}{2} \right) \quad (3)$$

In order to maximize the wage rate, we must have

$$\frac{dp}{dt} = \frac{wr}{2} \quad (4)$$

We can therefore rewrite (3) as

$$p = w + t \frac{dp}{dt} \quad (5)$$

Equation (5) implies that capital is rewarded according to its marginal productivity, while wages are ostensibly a residual. It must also be noted, as Wicksell himself pointed out, that in the Austrian model, the direction of change in the labor and capital shares, as more capital is applied (the production period is lengthened), cannot be determined *a priori*.

---

4. The main figures in this school are Bohm-Bawerk (1921), wicksell (1901), and walras (1926). Two authors have been most influential in providing a modern restatement of the Austrian theory namely, Hayek (1941) and Hicks (1973).

The above model reflects not only the Austrian view of distribution, but also their theory of interest. The Austrians (Bohm-Bawerk, 1889 and Wicksell, 1901) discussed the three grounds for the existence of a rate of interest. They criticized the first ground, namely, individual differences in want and provision in the future relative to the present, as tending to cancel out in a stationary economy. They have accepted the second ground of myopia. The third ground of the technical superiority of present over future goods has been used, especially by Wicksell as a direct *productivity* explanation of interest.

The Austrian school has been criticized (Bliss, 1975: 6) for failing to capture the essential features of reality, with respect to the capital concept of roundaboutness, and the sole recognition of the case of a single rate of interest. The latter claim to a unique interest rate<sup>(5)</sup>, which reappears in the neo-Austrian formulation, particularly Hicks (1973), requires the assumptions of no uncertainty and no externalities (Burmeister, 1974: 419-20).

The Austrian theory treats capital as wealth, or command over current output (Bliss, 1975: 6), as it considers capital to be the physical goods used in production. Viewing capital as wealth can be connected to viewing the rate of interest as the price of capital. Yet, the rate of interest is not the price of capital<sup>(6)</sup>.

If the rate of interest were the price of capital, it should be lower along a capital-rich relative to a capital-poor growth path. However, it has been shown (Bliss, 1975: 81-83; 111) that the rental of capital vector, which is the price of the use of capital, and the analogue of the wage rate, is that which is expected to be lower, and not the rate of interest<sup>(7)</sup>. The central role of the interest rate in the Austrian theory is insidious. Modern capital theoreticians call, either explicitly or implicitly through their own analysis, for the substitution of an intertemporal price system for the rate of interest as the central concept of the theory<sup>(8)</sup>.

## B. The Neoclassical Approach

### 1. The Cambridge Model

The Cambridge approach has arisen within the neoclassical framework which endeavors to explain income distribution through the processes of rational choice. Despite controversies netted within geographic confusion between American and British Cambridge, the Cambridge model has become a representative of the neoclassical analysis *par excellence*. It is therefore advisable to review in brief the salient features of that model<sup>(9)</sup>.

---

5. Called by Hicks a "Fundamental Theorem," (Ricks 1973:19).

6. In the words of Bliss (1975: 6), "The value which accrues from a sale is the product of price and quantity sold. Hence if the rate of interest is the price of capital, the quantity of capital must be the wealth on which an interest yield is calculated". Also, see Burmeister (1974: 421).

7. The price of the use of capital goods would be determined as the price of a composite capital good in terms of a numeraire consumption good.

8. This is not to deny the pedagogical role of the Austrian theory referred to by Burmeister (1974: 499).

9. The Keynesian revolution has taken its toll from Cambridge, that we can find within the school the (neo-) neoclassicals such as Paul Samuelson, and Robert Solow from the USA and James Meade of England, as well as the neo-Keynesians such as Joan Robinson, Nicholas Kaldor and Lonigi Pasinetti from England (Harcourt, 1972:1).

The Cambridge model is based on the assumptions upon which the *semi-stationary* state has been founded. Every input used in production grows at the rate of growth of the economy,  $g$ , and one of those inputs, which is labor, is not produced, and is fully employed. Labor has a subsistence level of consumption, so that the rate of growth of labor,  $g$ , does not depend on the real wage rate. This implies that the rate of interest is not too high to allow each worker to reach subsistence.

A critical assumption of this school is what is named the *classical savings assumption*, (Hahn & Matthews, 1964: 793-94), which involves few implications. All wage income is spent on consumption, which makes profits the only source of saving, and the proportion of profits saved is constant. All investment is financed out of profit, and a constant fraction of profits is being invested. The *saving-profit and the investment-profit* ratios would thus be equal to  $b$  where  $0 < b < 1$ .

Production activities within the Cambridge model are defined through a linear homogeneous production function exhibiting constant returns to scale. This would be the famous Cobb-Douglas formula. Accordingly, factor earnings correspond to their marginal products.

The assumptions of the theory leads to conclusions in the fields of distribution as well as growth. Factor shares in the total product will be equal to the elasticity of that output with respect to each factor evaluated at the point concerned.

The rate of growth of the economy,  $g$ , will be equal to the saving- profit ratio  $b$  multiplied by the rate of interest  $r$  (Bliss, 1975: 119-29)<sup>(10)</sup>.

$$g(r) = br^{(11)} \quad (6)$$

The neoclassical approach, as appears from its conclusions, claims the pricing of the factors of production to be the main mover in the process of income distribution. Obviously, the key element in that pricing process is the substitutability of the factors of production.

The one-commodity (output) model used by the neoclassical theory and which underlies the Cambridge model has been a source of some controversies named after Cambridge. The reason is that paradigms derived from the one-commodity model "do not always carry over to multicommodity intertemporal general equilibrium models" (Brown, Sato & Zarembka, 1976, xvi). Some of the properties of the one- commodity model which do not generally hold, as presented by Samuelson (Brown, Sato & Zarembka, 3-23), are: the equality of the rate of interest and the marginal product of capital; monotonic increases in per capita consumption, the capital/labor ratio, and the output/capital ratio as the rate of interest falls; no reswitching; and the equality of the elasticity of the factor-price frontier and the factor-share ratio.

---

10. In this model, the rate of return on capital, the rate of profit and the rate of interest are all equal.

11. The rate of growth is written as a function of  $r$ , the rate of profit.

## 2. The Post-Keynesian Critique

The most obvious aspect of the neoclassical approach, and perhaps the source of strongest attacks, is its insistence upon the sole importance of technical substitution between factors and commodities. The approach, thus, ignores the institutional and sociological factors influencing distribution. Joan Robinson, a strong critic of this approach accuses it of suggesting harmony, if not justice among the different groups in the capitalist system; something that could be interpreted as a support for the *status quo*.

Neither the contributions made along the line of aggregate production functions and the vintage models, in relation to the concept of capital and the explanation of productivity changes overtime, nor the attempts to update the Fisherian analysis were able to settle the debate. On the contrary, further criticism was hurled against marginalism in relation to *double switching and capital reversing*.

Finally, macro-theories of distribution have come out in response to the desire to return to the classical tradition where "pricing is an aspect of distribution rather than, as in neoclassical thought, distribution being but an aspect of pricing." Harcourt (1972: 9). Kaldor (1955-56) and Pasinetti (1962) are some of those who contributed in this regard.

### C. A Return to the Classics

#### 1. Post- Keynesianism

If the post-Keynesian trend in reshaping capital, growth and distribution theories were to be traced to a particular writer, Kalecki (1933) would be the one<sup>(12)</sup>. The issue, as might be expected was the classical saving assumption which was paradoxically one of the building blocks of the neoclassical (Cambridge) version. The assumption amplifies the classical perception of savings: that savings from profits ( $S_pP$ ) dominate savings from wages ( $S_wW$ ), the total saving is equal to

$$S = S_wW + S_pP; 0 \leq S_w \leq S_p \leq 1 \quad (7)$$

Equation (6) without the right-most condition can be considered as the *general saving function* (Hacche, 1979: 55-62). It becomes the classical saving function when  $0 = S_w < S_p$  Kalecki (1933) has shown that given such condition, investment determines profits and not *vice-versa*.

Another aspect of the neoclassical approach is factor substitutability, which was assumed to assure equilibrium and stable growth, and which requires capital malleability and a smooth production function. Kaldor (1961: 202) pointed out to the limited and costly possibilities of substitution.

A third aspect of the neoclassical approach is using  $K$  for aggregate capital in the production function which implies an assumption of homogeneity: As Robinson (1954) pointed out, meaningful definitions of the aggregate capital, the production function, and marginal products require knowledge of relative values of goods, *viz*, the price vector and the rate of profits. Obviously, it is the latter that the neoclassical theory attempts to explain.

---

12. See Joan Robinson (1977: 15), and Hacche (1979: 175).

As for the questions of saving propensities and capital malleability, it has been shown (Hacche, 1979: 176-78) that as long as  $s_w$  and  $S_p$  are sufficiently different and the profit-income ratio is variable (between zero and unity), the saving function shown in (6) can be incorporated in the neoclassical model to produce stable equilibrium growth.

## 2. Kalecki

Kalecki (1933 & 1954; and Hacche, 1979:186-192) ignoring the public sector and focusing attention on manufacturing industry, assumes the marginal cost to be constant within the normal (below full capacity) range of output. Regarding salaries as overheads, he proposes that the manual labor share in income (wages) is determined by the degree of monopoly prevalent in the market.

Kalecki's theory has been termed a tautology for he defines his explanatory variable, the degree of monopoly, as the price/prime cost ratio, which is closely related to the reciprocal of the share of wages, and which is the variable he intends to explain. However, Kaldor defends Kalecki's proposition that income distribution is determined by market structure, i.e., the strength and weakness of the forces of competition, as neither empty nor invalid, although it may be difficult to test.

## 3. Kaldor

In dealing with a fully-employed economy, Kaldor (1961) postulates a saving function of the form (7). He identifies the profit share with the profit margin of the Marshallian representative firm. He also assumes that excess demand (excess supply) of goods causes the profit margin to rise (fall) at full employment, i.e., profit margins are flexible. Using

$$Y = W + P \quad (8)$$

and equating investment  $I$ , which is assumed to be exogeneous, with saving, he obtains the profit share as equal to

$$\frac{P}{\bar{Y}} = \frac{(\bar{I}/\bar{Y}) - S_w}{S_p - S_w} \quad (9)$$

where  $\bar{I}$  and  $\bar{Y}$  are full employment investment and income. Moreover, in order that  $P/Y$  remains between zero and unity, (9) implies that

$$S_w < \bar{I}/\bar{Y} < S_p \quad (10)$$

It is obvious that condition (10) requires the propensity to save out of profits to be higher than that out of wages.

Kaldor's theory implies that, given full-employment output, the propensities to save and invest determine the distribution of income. However, this conclusion is subject to some external constraints.



*First*, the assumed exogeneity of investment implies that it is independent from both the saving function and profits. Independence from the former has a Keynesian flavor, but from the latter is hard to justify. Kaldor tries to overcome this by introducing an investment function in which investment directly varies with profits. However, a rise in profit margins (because of excess demand) may lead to a larger increase in investment than in saving. This has been claimed (Hahn and Matthews, 1964:34) to be a source of instability.

*Second*, given the capital/output ratio  $v$ , the rate of profit  $P/K$  should not fall below the rate of interest  $r$  plus the internal rate of return on (the marginal product of) capital  $i$ , that is

$$\frac{P}{K} = \frac{P}{Y} \cdot \frac{1}{V} \geq i + r \quad (11)$$

This condition implies that  $(i + r)$  represents the minimum financial conditions which would be necessary to entice producers to invest.

*Third*, defining the degree of monopoly (Kalecki, 1933, and 1954)  $u$  as the proportional margin of price  $P$  over average cost  $a$  (the sum of unit wage cost and unit raw materials cost), or

$$u = \min\left(\frac{P - a}{P}\right), \quad (12)$$

the profit share must fulfill:

$$\frac{P}{Y} \geq u \quad (13)$$

The *fourth* external condition is that the profit share must not exceed the level which allows the labor force to receive the minimum socially acceptable wage rate  $w'$  that is:

$$\frac{P}{Y} \leq \frac{Y - W'}{Y} \quad (14)$$

If the assumption of full employment is dropped, with the existence of underemployment; equilibrium output, profits, and wages are determined solely by the degree of monopoly.

#### 4. Pasinetti

Pasinetti (1962) goes back to the classical distinction between capitalist and labor classes, assigning to each within the Kaldorian model a different propensity to save.

By defining the propensities to save by capitalists and laborers as  $S_c$  and  $S_L$  respectively he rewrites (7) as

$$S = S_L (W + P_L) + S_c P_c ; 0 \leq S_L \leq S_c \leq 1 \quad (15)$$

While (5) implies that Kaldor (1966: 298) attaches the higher propensity to save to profits rather than to capitalists, Pasinetti attaches it to capitalists rather than to profits (Hacche, 1979:221). The Kaldorian full-employment distribution of income, as modified by Pasinetti then implies a capitalists share of income equal to:

$$\frac{P_c}{\bar{Y}} = \frac{(\bar{I}/\bar{Y}) - S_L}{S_c - S_L} \quad (16)$$

Which would fall between zero and unity provided that

$$S_L < (\bar{I}/\bar{Y}) < S_c \quad (17)$$

In distinguishing between capitalists' and laborers' wealth, Pasinetti assumes that both grow at the same natural rate  $n$ . In equilibrium, the rates of profit going to capitalists and laborers must be the same. Pasinetti's growth model would then have one feasible solution, that is when capitalists' wealth is positive<sup>(13)</sup>.

$$\frac{P}{K} = \frac{n}{S_c} \quad (18)$$

According to this solution, the saving propensity of the propertied non-working class is the only strategic variable determining the long-run share as well as rate of profits in the Pasinetti model. This conclusion still holds, no matter how many other social classes are introduced into the model. Even if a neoclassical production function were introduced, it would have no effect on the long-run profit rates. This has been dubbed the *Pasinetti Paradox*<sup>(14)</sup> (Hacche, 1979:223).

### 5. Ahmad

Ahmad (1982) introduces *zakah* into a Kaldor-Pasinetti model. *Zakah* is presumably collected on *zakatable* assets  $A$ , some of which may not be *productive capital*. This distinction gives rise to some conceptual problems. The so-called non-productive assets are held either for their stream of services, as in consumers' durables, or for the expected appreciation in their prices, or both. Since inflation is ruled out in Kaldor's non-monetary model, only consumers' durables will be held as "non-productive" assets. There would be no rational reason, apart from monetary uses, to hold barren assets, like bullion.

Defining *zakatable* assets owned by capitalist as  $A_c$ , their capital assets as  $K_c$ , their profit earnings as  $P_c$ , and their savings as  $S_c$ , we can derive the steady-state equilibrium which corresponds to (18). By using Ahmad's results (Ahmad 1982:13) we obtain<sup>(15)</sup>

---

13. The details of these derivations are found in Hacche (1979), especially Ch. 12. The reader can refer to the same place for the solution when capitalists' wealth is zero.

14. For a helpful synthesis of the issues revolving around this paradox see Meade (1966).

15. See appendix I for the derivation.

$$\frac{P_c}{K_c} \left( 1 - \delta \left( \frac{A_c}{P_c} \right) \right) = \frac{n}{S_c} \quad (19)$$

where  $\delta$  is *zakah* rate as defined in Ahmad (1982). Remembering that profit rates going to capitalists and workers are equal in equilibrium, then

$$\frac{P}{K} \left( 1 - \delta \left( \frac{A_c}{P_c} \right) \right) = \frac{n}{S_c} \quad (20)$$

Where P is total profit and K is total capital resources.

The above result shows that, similar to Pasinetti's model, the profit rate depends on the saving propensity of the capitalist class. However, It also depends on *zakah* rate<sup>(16)</sup>.

A requirement for a feasible solution would be

$$\delta \frac{A_c}{P_c} < 1 \quad \text{or} \quad \frac{P_c}{A_c} > \delta \quad (21)$$

This means that for growth to be positive the rate of profit on capitalist total (productive and non-productive) assets must exceed the rate of *zakah*.

In addition, the income shares as derived by Ahmad (1982) depend upon the saving propensities of both capital owners and wage earners, as well as *zakah* rate.

The above conclusions of Ahmad, although made within the Kaldor-Pasinetti traditions, show a positive breakaway of his model from its precursors in that respect. Yet, the results shown by (20) that the profit rate depends upon the saving propensity of the capitalist class implies that the breakaway is incomplete.

The reason for the Kaldor-Pasinetti remaining influence on Ahmad's model is his division of income between capital owners and wage earners. This is what will be shown below to be in contradiction with some of the characteristics of an Islamic economy. Once this is corrected, the breakaway from post-Keynesian influences will be greater.

## II. Towards an Islamic Approach

### A. Islamic Versus Contemporary Muslim Structures

We have seen from the preceding short survey of Western literature that the factors behind distribution are two kinds: Socioeconomic mainly class struggle stressed by the classics, and purely economic mainly market forces stressed by the neoclassics. In order to evaluate which set of variables to use as a basis of constructing an Islamic theory of distribution, a distinction must be made between the *Muslim* economies as they exist at present, and an Islamic economy which truly adheres to the teachings of Islam.

---

16. This is a step further towards showing that distribution and redistribution are inseparable.

### 1. Muslim Economies

The advent of colonialism to the Islamic world has been accompanied by two phenomena. The first was the mass destruction and deformation of the existing Islamic socioeconomic institutions. The second is the mass transplantation of Western institutions into *Dar Al-Islam*. Successive changes have brought the Western-adopted ways of nationalism, capitalism and socialism to the formerly Islamic adherents.

Such influx of socioeconomic change has Westernized the way of life in some countries into a conversion to Western values. In some other countries the transformation was incomplete.

It is not therefore surprising to find elements of the Western civilization lurking in Muslim countries, and sufficiently tempting economists to use Western theories as a basis for analysis. Much has been done in the area of looking at the Muslim economies through market oriented processes, not much different from the neoclassical eye. Much also has been done to analyze contemporary Muslim activities and modern history through Marxist eyes.

It would be naive on the side of Islamic thinkers to claim that their contemporary socioeconomic structures cannot be analyzed using a capitalist or a Marxist laboratory manual. Such structures bear a great deal of resemblance in their formal build-up to both of the centers of Western civilization. The process of Hellenizing the East which failed in pre-Islamic times<sup>(17)</sup> have finally succeeded in our times, not through Athens or Rome, but rather through London, Paris, Washington, and Moscow.

It is not, therefore unexpected to see Western models being readily applied on Muslim communities by different scholars with some measure of success. This is because the *formal process* in those societies in the socioeconomic and political fields have taken Western form; sometimes capitalist, sometimes Marxist.

### 2. The Islamic Model

While the Muslim world has been, through either foreign or domestic hands, forcibly transformed into Western forms, the majority of Muslims themselves have not been converted to Western ideals. They still yearn to the total and uncompromised application of Islam.

It is therefore natural that Islamic thinkers would try to build an Islamic model through which they can accomplish a multitude of goals. First, it is useful to envision a set of Islamic institutions which can ultimately replace the current hodgepodge of imported institutional concoctions. Second, economic analysis within an Islamic environment is almost impossible without such a model. Third, policy implications cannot be claimed without reference to a specific formal structure.

The difficulty connected with constructing that model, apart from the intellectual effort involved, is the fact that current socioeconomic structures in the Muslim world

---

17. with the exception of the Hellenization of Christianity which was a total success.

could easily become to the unwary analyst a red herring. One must be aware of the distinction between Islam and contemporary Muslim societies, in order not to be fooled with the Western elements prevailing in those societies.

Turning to the theory of distribution, one may ask, what is in Islamic teachings that would assist in building a macro theory in this field? Some of the elements that should be considered are reviewed in the following sections.

### *B. Factors Affecting Distribution*

There are certain non-economic factors which should be found in an Islamic society which would influence distribution.

- a. Differences in human-capital endowments.
- b. Differences in non-human capital inheritance.
- c. Technological relationships.
- d. Financial relationships.
- e. Social relations, within families, kith and kin.

The first two variables are not unique to the Islamic model, for they play a role in other societies. The Islamic model, nonetheless, contains financial relationships which are unique in two ways: efficiency as well as redistributive implications. The efficiency aspect relates to whether an Islamic economy is capable of reaching and maintaining full employment. The answer to this question has not been put together yet, but traces of it can be found in some writings (e.g. Al-Jarhi, 1981).

Briefly, social relationships combine the prohibition of interest on money, with the payment of *Zakah* on wealth inclusive of idle balances. The two added together implies a negative rate of return on hoardings. Banks in the Islamic model act as direct investors by supplying capital on a profit-loss-sharing basis, in addition to providing banking services.

As hoarding has been made irrational, financial resources are either held for transaction purposes, or used for consumption or investment. The interplay between the rate of time preference and the rate of return on investment produces an allocation of financial resources. As long as there is no technological problem (e.g. shortages of investment opportunities) as long as the economy is below full employment the rate of return on investment is larger than zero. If the rate of time preference is kept reasonably low, full employment is attainable.

An effective redistribution of income on a yearly basis to keep the poor propertied can lower the rate of time preference which could further facilitate the attainment of full employment. We will therefore assume a reasonable degree of factor substitutability as well as an effective redistributive policy.

A question would arise about socioeconomic classes, whether it would be legitimate to speak about distribution to capitalists, laborers, and landowners. The answer to this question lies in the fourth variable, the financial relationships (Al-Jarhi, 1981).

In an Islamic economy, each Muslim channels his savings to investment either directly through buying stocks, or indirectly through (Islamic) banks. The Muslim would then be in a position similar to holding a common stock in an investment bank or in a particular company. Meanwhile, he could be working for a wage or a salary. Therefore, distinction between propertied and non-propertied individuals becomes more tenuous in such an economy. It becomes even more so because the poor whose property is below a certain limit, called *nisab*, are to be given more property through *zakah*.

We can therefore say that Muslims in an Islamic society would mostly be capital holders, and most of them are salary- and wage-earners at the same time<sup>(18)</sup>. The division of social classes would therefore become theoretically meaningless and practically dubious.

Distribution within this framework can be studied on a functional basis, i.e., in terms of factor shares. It can also be studied on a personal basis, i.e., the relative shares of the poor, with property (temporarily) below *nisab* and the rich, those above it.

Since *nisab* is not set with reference to a subsistence level, the owner of this minimum level of property should be well to do sufficiently to save and invest. Personal wealth is readjusted yearly to make sure that those who are below *nisab* must rise above it. Therefore, it should be interesting within an Islamic economy to look at the profit, as well as the wage-shares of those who become temporarily below *nisab* and those who stay above it.

Another question can be asked about the role of market forces in distribution within an Islamic economy. In this regard, the *market-order* of the Islamic financial system must be remembered (Al-Jarhi, 1981). Its functions would disallow monopoly and collusive behavior. Kalecki's degree of monopoly would not be significant in this regard as a factor influencing distribution<sup>(19)</sup>.

### C. Redistribution

The Islamic economic system is based on the premise that the prevailing distribution of wealth could deviate from that which is most desirable, i.e., where each Muslim capable of earning a living would be an owner of a minimum level of real wealth. It is not therefore surprising that several means of distribution have been built-in into the Islamic economy to insure the attainment of that level of wealth (Appendix III). This type of redistribution significantly modifies people's behavior towards saving, making it theoretically difficult to study redistribution separately.

Some of these means are briefly reviewed below in order to demonstrate that distribution in an Islamic economy cannot be separated from redistribution. Western models discuss the two questions separately. A macro model of distribution is built first,

---

18. Some Muslims would become temporarily non-propertied for short periods before the yearly redistribution of *zakah*; which is given to the needy who can earn a living in terms of assets to enable them to be sufficiently productive for self-sustenance, and to those incapable, in terms of an income maintenance scheme.

19. This would not remove the monopoly elements related to having special talents or owning a specific Site, although the market order division would attenuate the effects of such monopolies on prices.

then redistributive measures are introduced. Moreover, Western thinking places macro distribution models in positive economics, while it places redistribution into welfare economics.

The luxury of such separation cannot be afforded to Islamic thinkers, for redistributive measures are integral parts of the Islamic economy without which positive analysis cannot be considered. One is tempted to hazard that even if separation is attempted, it cannot work. An example is the paper of Ahmad (1982), in which the only basic characteristic of an Islamic economy the author found appropriate to introduce to the Kaldor-Pasinetti model, viz, *zakah*, is redistributive.

In addition to *zakah* as an Islamic means of redistribution, we find the system of inheritance which forces the wealth of an individual to be redistributed after his death among a group of specific heirs in a prescribed manner. Islamic law allows no one to tamper with the post mortem redistribution of his wealth, except within a maximum of one-third of his wealth.

For that one-third, each Muslim is called upon to will it out to the needy (within his relatives and then without) who would not otherwise be entitled to a share of his estate<sup>(20)</sup>.

Another means of redistribution is through public goods, where the relatively poor can be favored with certain government services, e.g., education, health, housing, debt repayment, paying for the freedom of slaves, helping the wayfarer, assisting with marriage costs, and so forth.

Another means of redistribution is carried out informally in an Islamic economy through the requirements of brotherhood that should exist among Muslims. Examples include the rights of neighbors, relations and guests, the dislike of a Muslim to keep extras of consumers goods (clothes, food, etc.) to himself while others are in need; and so on.

It must be stressed in this respect that redistribution is not carried within *Political* borders, for it must be carried among the Islamic *Ummah* as a whole. Such is a concern for inter-country wealth disparity that is rare to find in other systems.

#### *D. A Proposed Islamic Model*

##### *1. Framework*

The basic requirements for an Islamic model enumerated above demand a lot of effort, perhaps at stages, in order to arrive at an Islamic model for distribution. Nonetheless, the latest attempt to do so (Ahmad, 1982) has been a positive step in that direction which would call for another attempt, to construct a model which would be closer to Islam than to post-Keynesianism.

---

20. Many scholars opine that such will is obligatory.

First, let us define income as

$$Y (P_R + W_R + aZ) + (P_N + W_N - Z) + (1 - a) Z \quad (23)$$

Where P and W refer to profits and wages, and subscripts R and N refer to recipients and non-recipients of *zakah*, Z, respectively. The ratio a represents the proportion of *zakah* given to the poor. The last term of the identity represents the part of *zakah* allocated to other uses<sup>(21)</sup>.

It must be remembered that in an Islamic economy the *investment centered banking processes*, (Al-Jarhi, 1981) insure that savings are automatically channeled into investment. Moreover, since *zakah* is levied on all financial and real assets, monetary hoardings will earn a negative rate of return equal to *zakah* rate. This implies that to hoard in an Islamic economy is irrational.

The automatic transfer of savings into investment and the non existence of hoarding assure that savings are equal to full-employment investment. Defining the average propensity to save out of *zakah* allocated to other uses as  $S_o$  we obtain<sup>(22)</sup>

$$\bar{I} = \bar{S}_{SR} (P_R + W_R + aZ) + S_N (P_N + W_N - Z) + S_o (1 - a) Z \quad (24)$$

Where I and S are full-employment levels of investment and savings, respectively.

Propensities to save by recipients and non-recipients of *zakah*,  $S_R$  and  $S_N$  respectively have been used in (24) in addition to the propensity to save from *zakah* allocated to other uses. The distinction between these two groups by the level of wealth lies in contrast with the division of society into social classes of laborers and capitalists made by Kaldor-Pasinetti following the classics. It is also notable that Ahmad (1982) attempted a distinction similar to that of (24), but did not carry it through. Instead, he returned to the classical social classes.

## 2. Income Shares

The application of *zakah* deserves some observations. There is a general agreement in the literature that *zakah* is to be levied on wages and salaries above *nisab*. As to productive assets, *amwal namiah*, opinions vary as to whether *zakah* should be levied on its total value or its net (after depreciation allowances) returns; with the second opinion taking precedence. Considering that wages and profits accrued to non-recipients contain the net returns of productive assets above *nisab*, we can define *zakah* collected as:

$$Z = z (P_N + W_N) \quad (25)$$

Where z is the average rate of *zakah*, (corresponding to Ahmad's  $\delta$ ) which is an average of actual rates weighted by their respective bases. We can therefore derive the

---

21. See Appendix II.

22. I am indebted for the addition of this term to Dr. Syed Taher of the Islamic University, Islamabad.



income shares of recipients and non recipients<sup>(23)</sup> at the full-employment level of income  $\bar{Y}$ .

$$\frac{W_R + P_R}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - (S_N - S_O)Z(1-a)}{S_N - S_R - S_O Z(1-a)} \quad (26)$$

$$\frac{W_N + P_N}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - S_R}{(S_N - S_R) - Z(S_N - aS_R)S_O Z(1-a)} \quad (27)$$

In contrast to the Kaldor-Pasinetti approach, fulfilling the requirement that income shares lie between zero and unity depends upon:

- a - both of the saving propensities, and not the saving propensity of just one group,
- b - the average *zakah* rate,
- c - the proportion of *zakah* allocated to the poor, and
- d - the propensity to save out of *zakah* allocated to other uses.

Since equations (26) and (27) show the pre-redistribution shares, it is remarkable that those shares should depend on the rules of redistribution, i.e., a and z. This proves our earlier postulate that in an Islamic economy the study of redistribution cannot be separated from distribution.

### 3. Factor Shares

Factor shares can be derived from the model after defining the average rates of *zakah* on wages and profits as  $Z_W$  and  $Z_P$  respectively and the propensities to save out of wages and profits,  $S_W$  and  $S_P$  respectively, as the weighted averages of the saving propensities of recipients and non-recipients in each category of income<sup>(24)</sup>.

$$\frac{W}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - SP + (1-a)(S_p - S_o)Z/\bar{Y}}{(S_w - S_p)(1 + aZ_w - ZW)} \quad (28)$$

$$\frac{P}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - S_w + (1-a)(S_w - S_o)Z/\bar{Y}}{(S_p - S_w)(1 + aZ_p - ZP)} \quad (29)$$

Another contrast to the Kaldor-Pasinetti results is clear from (28) and (29). Factor shares do not depend on the propensities to save from a particular kind of income (wages or profits) alone, as in equation (16) above. Each factor share in (28) and (29) depends on both propensities to save as well as the rate of *zakah* and the rate of redistribution.

When steady state growth rates are derived, the profit rates on capital owned by recipients  $K_R$  and non-recipients  $K_N$  are equal to<sup>(25)</sup>.

23. See Appendix II.

24. Detailed derivation is presented in Appendix II.

25. Equations (42) and (45), Appendix II.

$$\frac{P_R}{K_R} = \frac{g}{S_R} - \frac{W_R + aZ}{K_R} \quad (30)$$

$$\frac{P_N}{K_N} = \frac{g}{S_N(1-Z)} - \frac{W_N}{K_N} \quad (31)$$

Similarly, equations (30) and (31) drastically differ from (18) in the Kaldor-Pasinetti model and (21) in Ahmad's model, especially in the fact that the rate of profit depends, in addition to the saving propensity of either group, on the rates of *zakah* and redistribution.

#### 4. Comparison with the Western Model

We can now compare the results obtained above with those of the Western model as elaborated by Kaldor (1961) and Pasinetti (1962) in three ways, income disparity, rate of return on capital and growth.

It is obvious that *zakah* receipts will raise the incomes of recipients in two ways: One in terms of an income maintenance scheme, and the other in terms of productive assets enabling recipients to independently sustain a living during life time. In either case, the income differential between recipients and non-recipients is narrowed. Consequently a degree of distributive equity is maintained.

The rate of return on capital in the Western model is represented by

$$\frac{P}{K} = \frac{n}{S_C} \quad (32)$$

Where  $n$  is the rate of growth and  $S_C$  is the savings propensity of the capitalist class. The rate of return on capital in the proposed Islamic model is represented by equations (30) and (31). Assuming that  $S_C = S_N$  and  $g = n$ , the rate of return on capital in the Islamic model is greater than that in the Kaldor-Pasinetti model when

$$\frac{g}{S_N} \left( \frac{Z}{1-Z} \right) > \frac{W_N}{K_N} \quad (33)$$

The right-hand side is the ratio of wage income to capital holdings of non-recipients. Obviously, it is a small percentage, for if the ratio of total earnings to capital were 10% (a reasonable figure under stable prices), the wage income/capital ratio could not exceed 5%, implying a rate of return on capital amounting to 5%. It would be more reasonable to assume a lower wage income/capital ratio, however, for non-recipients depend relatively less on that source of income.

On the left-hand side, the rate of growth  $g$  is greater than one, while the saving ratio is less than one, causing their quotient to be a multiple of one. Assuming negligible growth of 1%, and a saving ratio of 10%, we get a quotient of 10. Assuming *zakah* rate to be 0.025, the left-hand side will be equal to about 26% which is higher than a wage income/capital ratio of 5%.

It must be noted that the left-hand side would assume even greater values with higher real growth and higher saving ratios. We must therefore conclude that, under normal conditions, the rate of return on capital in an Islamic economy should exceed the corresponding rate in a western-type economy characterized by Kaldor-Pasinetti properties. This is so, remembering our assumption of  $S_C = S_N$  and  $g = n$ . However, if  $g > n$ , as will be shown below, the rate of return on capital would even be higher in an Islamic economy. The case where  $S_C \neq S_N$  requires further investigation.

In order to judge which economy has higher growth, we can derive from (30) and (31) the following two conditions under which the rate of growth in an Islamic economy should be higher.

$$SR \frac{P}{K} + \frac{W_R + aZ}{K_R} > \frac{P}{K} \cdot S_C \quad (34)$$

$$S_N(1-Z) \left( \frac{P}{K} + \frac{W_N}{K_N} \right) > \frac{P}{K} \cdot S_C \quad (35)$$

It is obvious that the first condition as expressed by (34), is true. In equation (35), it becomes obvious that the second condition is fulfilled when it is noticed that:

$$\frac{P}{K} + \frac{W_N}{K_N} > Z \quad (36)$$

We therefore conclude that an Islamic economy so outlined would have higher growth, higher return on capital, and more equitable distribution of wealth.

**APPENDIX I<sup>1</sup>**

$$\frac{I_c}{K_c} = \frac{Y_c}{K_c} \cdot s_c = n \quad (1)$$

$$\text{but } Y_c = P_c \left( 1 - \delta \left( \frac{A_c}{P_c} \right) \right), \quad (\text{Ahmad: 13}) \quad (2)$$

$$\frac{P_c}{K_c} (1 - \delta \left( \frac{A_c}{P_c} \right)) = \frac{n}{s_c} \quad (3)$$

A feasible solution requires

$$\frac{P_c}{K_c} (1 - \delta \left( \frac{A_c}{P_c} \right)) > 0 \quad (4)$$

$$1 - \delta \left( \frac{A_c}{P_c} \right) > 0 \quad (5)$$

$$\delta \frac{A_c}{P_c} < 1 \quad (6)$$

$$\delta < \frac{P_c}{A_c} \quad (7)$$

$$\frac{P_c}{A_c} > 0.025 \quad (8)$$

---

1. See Hacche (1979: 222) (12. 15).

**APPENDIX II***A. Basic Relations*

$$Y = Y_R + Y_N + (1 - a) Z \quad (1)$$

$$Y_R = W_R + P_R + aZ \quad (2)$$

$$Y_N = W_N + P_N - Z \quad (3)$$

$$Z = z (W_N + P_N) \quad (4)$$

$$S = S_R + S_N + S_o \quad (5)$$

$$S_R = s_R Y_R \quad (6)$$

$$S_N = s_N Y_N \quad (7)$$

$$S_o = s_o (1 - a) Z \quad (8)$$

*B. Income Shares*

$$\bar{Y} \text{ is full employment income such that } \bar{S} = \bar{I} \quad (9)$$

Substituting in (1) from (2), (3) and (4) we get:

$$\begin{aligned} \bar{Y} = & ( (W_R + P_R) + az (W_N + P_N) ) + \\ & ( (W_N + P_N) (1 - z) + (1 - a) z (W_N + P_N) ) \end{aligned} \quad (10)$$

$$Y_R = \bar{Y} - (W_N + P_N) \{ (1 - z) + (1 - az) \} \quad (11)$$

Substituting for  $Y_R$  in (1) from (2) we get:

$$\bar{Y} = (W_R + P_R) + aZ + (W_N + P_N) (1 - z) + (1 - a) Z \quad (12)$$

$$Y_N = \bar{Y} - (W_R + P_R) - Z \quad (13)$$

$$\bar{I} = \bar{S} = s_R Y_R + s_N Y_N + s_o (1 - a) Z \quad (14)$$

Substituting from (11), (3) and (4),

$$\begin{aligned} \bar{I} = & s_R \bar{Y} - s_R (W_N + P_N) (1 - az) + s_N (1 - z) \\ & (W_N + P_N) + s_o (1 - a) Z \end{aligned} \quad (15)$$

$$= s_R \bar{Y} + (W_N + P_N) (s_N (1 - z) - s_R (1 - az)) + s_o (1 - a)z (W_N + P_N) \quad (16)$$

$$\bar{I} = s_R \bar{Y} + (W_N + P_N) ( (s_N - s_R) - z (s_N - as_R) + s_o z(1 - a) ) \quad (17)$$

$$\frac{W_N + P_N}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - s_R}{(s_N - s_R) - z (s_N - as_R) + s_o z (1 - a)} \quad (18)$$

Similarly, by using (2) and (13),

$$\bar{I} = \bar{S} = s_R (W_R + P_R) + as_R Z + s_N \bar{Y} - s_N (W_R + P_R) + s_o (1 - a)Z \quad (19)$$

$$\bar{I} = s_N \bar{Y} - (W_R + P_R) (s_N - s_R) - s_o (1 - a)Z \quad (20)$$

Substituting for Z from (4), and using (1), we get:

$$\frac{W_R + P_R}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - (s_N - s_o z (1 - a))}{s_N - s_R - s_o z (1 - a)} \quad (21)$$

From (18),

$$0 < \frac{W_N + P_N}{\bar{Y}} < 1, \text{ if} \quad (22)$$

$$\text{a. } (s_N - s_R) > z (s_N - as_R) + s_o z (1 - a), \quad (22\text{-a})$$

$$\text{b. } (\bar{I}/\bar{Y}) > s_R, \text{ and} \quad (22\text{-b})$$

$$\text{c. } (\bar{I}/\bar{Y}) < s_N - z (s_N - as_R) + s_o z (1 - a). \quad (22\text{-c})$$

From (21)

$$0 < \frac{W_R + P_R}{\bar{Y}} < 1, \text{ if} \quad (23)$$

$$\text{a. } s_N > s_R - s_o z (1 - a) \quad (23\text{-a})$$

$$b. \bar{I}/\bar{Y} > (s_N - s_o Z (1 - a)) , \text{ and} \quad (23-b)$$

$$c. \bar{I}/\bar{Y} < 2s_N - s_R - 2s_o (1 - a) \quad (23-c)$$

### C. Factor Shares

$$W = W_R + W_N \quad (24)$$

$$P = P_R + P_N \quad (25)$$

Defining  $z_w$  and  $z_p$  as *zakāh* rate on wages and profits, respectively,

$$z_w = \frac{zW_N}{W} ; z_p = \frac{zP_N}{P} \quad (26)$$

$$Z = z_w W + z_p P \quad (27)$$

Rewriting (10)

$$\bar{Y} = W + P + az_w W + az_p P - z_w W - z_p P + (1 - a) Z \quad (28)$$

$$= (1 + az_w - z_w) W + (1 + az_p - z_p) P + (1 - a) Z \quad (29)$$

let  $\underline{W}$  and  $\underline{P}$  be disposable (after redistribution) wages and profits, then:

$$\underline{W} = (1 + az_w - z_w) W ; \underline{P} = (1 + az_p - z_p) P \quad (30)$$

Define the saving propensities out of disposable wages and profit as

$$s_w = \frac{s_R W_R + s_N W_N}{\underline{W}} ; s_p = \frac{s_R P_R + s_N P_N}{\underline{P}} \quad (31)$$

Then

$$\bar{I} = \bar{S} = s_w (1 + az_w - z_w) W + s_p (1 + az_p - z_p) P + s_o (1 - a) Z \quad (32)$$

(32) can be solved for  $W$  in terms of  $\bar{Y}$  using (29):

$$\bar{I} = s_w (1 + az_w - z_w) W + s_p (\bar{Y} - (1 + az_w - z_w) W - (1 - a) Z) + s_o (1 - a) Z \quad (33)$$

$$\bar{I} = (s_w (1 + az_w - z_w) (1 - s_p) ) W + s_p \bar{Y} - (1 - a) Z (1 - s_o) \quad (34)$$

$$\frac{W}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - s_p + (1 - a) (s_p - s_o) Z/\bar{Y}}{(s_w - s_p) (1 + az_w - z_w)} \quad (35)$$

Similarly, (32) can be solved for P in terms of Y using (29)

$$\bar{I} = s_p (1 + az_p - z_p) P + s_w (Y - (1 + az_p - z_p) P - (1 - a) Z) + s_o (1 - a) Z \quad (36)$$

$$= (s_p (1 + az_p - z_p) (1 - s_w)) P + s_w \bar{Y} - s_w (1 - a) z + s_o (1 - a) Z \quad (37)$$

$$\frac{P}{\bar{Y}} = \frac{\bar{I}/\bar{Y} - s_w + (1 - a) (s_w - s_o) Z/\bar{Y}}{(s_p - s_w) (1 + az_p - z_p)} \quad (38)$$

#### D. Steady State Growth

Define capital assets with recipients and non-recipients as  $K_R$  and  $K_N$ , respectively.

The relative rates of growth in both types of capital must, in steady state, be equal to the rate of balanced growth  $g$ , so that:

$$\frac{K_R}{K_R} = \frac{S_R}{K_R} = g, \quad \text{and} \quad (39)$$

$$\frac{K_N}{K_N} = \frac{S_N}{K_N} = g \quad (40)$$

Substituting for  $S_R$  in (39)

$$\frac{s_R (W_R + P_R + aZ)}{K_R} = g \quad (41)$$

$$s_R \frac{P_R}{K_R} + s_R \frac{(W_R + aZ)}{K_R} = g \quad (42)$$

$$\frac{P_R}{K_R} = \frac{g}{s_R} - \frac{W_R + aZ}{K_R} \quad (43)$$

Similarly, substituting for  $s_N$  in (40),

$$\frac{s_N ( (1 - z) W_N + (1 - z) P_N )}{K_N} = g \quad (44)$$

$$s_N (1 - z) \frac{P_N}{K_N} + s_N (1 - z) \frac{W_N}{K_N} = g \quad (45)$$

$$\frac{P_N}{K_N} = \frac{g}{s_N (1 - z)} - \frac{W_N}{K_N} \quad (46)$$



## Appendix III

### The Salient Features of *Zakah*\*

*Zakah* is one of the pillars of Islam. Denying it by a Muslim is tantamount to apostasy which is equivalent to treason in an Islamic State.

It can be likened to what is known in modern terms as a redistributive wealth tax to which all assets, *amwal*, beyond a certain limit are subjected regardless of the age or status of their owners. It is a religious obligation on each Muslim. Nonetheless, the Islamic State can levy a similar tax on its non-Muslim subjects, to be used for the same purposes. The assets on which *zakah* is payable must fulfill the following conditions:

- 1 - Growth, except for monetary balances.
- 2 - Quantity owned exceeds a certain minimum level called *nisab*.
- 3 - Quantity owned exceeds the necessary amount of assets whose income supplies the *basic* needs, *hajat asliah*, of their owners. Basic needs include: food, cloth, shelter, defense weapons, repayment of debt, tools of work, home furniture, and transportation of owner, his wife, children and those for whom he is financially responsible.
- 4 - If the asset is either cattle or money, its ownership by the individual must continue uninterrupted for one year before *zakah* becomes due.

#### Kinds of *Zakatable* Assets:

- 1 - Animal wealth, except working animals.
- 2 - Gold, silver, and monies.
- 3 - Jewellery, beyond reasonable requirements.
- 4 - Commodities (including assets) in the hands of merchants for the purpose of exchange (working capital).
- 5 - Crops and fruit.
- 6 - Rented land. \*\*
- 7 - Honey and animal products.
- 8 - Mineral resources.
- 9 - Marine products like fish, pearls, ambergris, minerals extracted from the sea, etc.
- 10 - Buildings and factories. \*\*
- 11 - Wages and salaries (as they are received). \*\*
- 12 - Stocks and other financial assets.

---

\* Based on Yusuf Al-Qaradawi, *Fiqh Al-Zakah*, Al-Risalah est., Beirut, 3rd ed., 1397H, 1977g.

\*\* According to the common practice based on the opinion of the majority of jurists the income from rented land, building and factories is subject to Zakat at an annual rate of 2.5% and wages and salaries are *Zakatable* not as they are received but, along with other wealth, at the end of the year. The writer has adopted the opinion of al-Qardawi who considers wages and salaries to be *Zakatable* as they are received and subjects the yield of rented land, buildings and factories, net of depreciation, to a rate of 10% (analogous to agricultural crops).  
[Editor]

**The Uses of *Zakah* Revenue**

Al- Quran mentions eight uses.\*

- 1 - the poor
- 2 - the needy
- 3 - *zakah* collectors
- 4 - "those whose hearts are to be reconciled"
- 5 - to free captives
- 6 - insolvent debtors
- 7 - the cause of Allah
- 8 - the wayfarer

Obviously, putting the poor and the needy on the top of the list allots them the highest priority. This reflects the ostensibly distributive nature of *zakah*.

*How Much to be Given*

The poor and the needy can be both divided into two categories: those capable of earning a living, and those who are not.

The first group are to be given assets which would be sufficient and suitable to enable each to sustain his living, e.g., tools of the profession, capital for an enterprise, land to farm, etc. Members of this group would be made propertied in a way that disqualifies them from obtaining a share in *zakah* in the future.

The second group would get an income maintenance to sustain themselves periodically, e.g., monthly or weekly.

This method of redistribution enables the first group to cross the subsistence line into property ownership. Thus, they find themselves interested in saving to maintain their wealth on the one hand, and to accumulate on the other hand. Their saving propensity would not be expected to be smaller than that of their wealthier counterpart.

---

\* Al-Taubab, IX. 60.

## References

- Ahmad, Ausaf** (1982), "A Macro Theory of Distribution in Islamic Economy". A revised version of this paper is published in *Journal of Research in Islamic Economics*. (Jeddah) Vol. 2. No.1, Summer 1404/1984, pp.1-20.
- Al-Jarhi, Mabid Ali** (1981), "A Monetary and Financial Structure for an Interest-Free Economy: Institutions, Mechanism and Policy". Seminar on Monetary and Fiscal Economics of Islam, Islamabad, now available in **Ahmad, Ziauddin**, et al (eds.) *Money and Banking in Islam*, Islam abad, Institute of Policy Studies, 1983. pp.69-87.
- Bliss, C.J.** (1975), *Capital Theory and the Distribution of Income*, North Holland Publishing Co., Amsterdam.
- Bohm-Bawerk, Eugene von** (1889), *Positive Theory of Capital*, (English translation), Macmillan, London, 1891.
- Bohm-Bawerk, Eugene von** (1959), *Capital and Interest*, South Holland, III.
- Brown, M., Sato, K. and Zarembka, P.** (eds.) (1976), *Essays in Modern Capital Theory*, North Holland Publishing Co., Amsterdam, 1976.
- Bruno, M.** (1969), "Fundamental Duality Relations in the Pure Theory of Capital and Growth," *Review of Economic Studies*, Vol. 36, pp. 39-54.
- Burmeister, Edwin** (1974), "Synthesizing the Neo-Austrian and Alternative Approaches to Capital Theory: A Survey," *Journal of Economic Literature*, 12(2), pp.413-457.
- Dewey, Donald** (1965), *Modern Capital Theory*, Columbia University Press, New York.
- Hacche, Graham** (1979), *The Theory of Economic Growth: An Introduction*, Macmillan, London.
- Hahn, F. H. and Matthews, R.C.O.** (1964), "The Theory of Economic Growth: A Survey," *Economic Journal*, 74 (December), pp. 779-902.
- Harcourt, G. C.** (1972), *Some Cambridge Controversies in the Theory of Capital*, Cambridge University Press, London.
- Hayek, F. A.** (1941). *The Pure Theory of Capital*, Routledge and Kegan Paul, London and Henley, 1976.
- Hicks, John** (1973), *Capital and Time: A Neo-Austrian Theory*, Oxford University Press, London.
- Kaldor, Nicholas** (1961), "Capital Accumulation and Economic Growth," in *The Theory of Capital*, ed. F.A. Lutz and D.C. Hague, Macmillan, London.
- Kaldor, Nicholas** (1966), "Marginal Productivity and the Macro-Economic Theories of Distribution", *Review of Economic Studies*, Vol. 33, pp. 304-19.
- Kalecki, M.** (1933), "A Macrodynamical Theory of Business Cycles", published in Polish, *Econometrica*, Vol. 3, 1935, pp. 327-44.
- Kalecki, M.** (1954), "Distribution of National Income", reprinted in *Selected Essays on the Dynamics of the Capitalist Economy, 1933-1970*, Cambridge University Press, London, 1971.
- Kemeny, J. G., Morgenstern, O., and Thompson, G.L.** (1956), "A Generalization of the von Neuman Model of an Expanding Economy", *Econometrica*, Vol. 24, pp. 115-135.
- Marx, K.** (1968), "Wage Labour and Capital, and Wages, Price and Profit", in K. Marx and F. Engels, *Selected Works*, Lawrence and Wishart, London.
- Meade, J. E.** (1966), "The Outcome of the Pasinetti Process: A Note", *Economic Journal*, Vol. 76, pp. 161-6.
- Morishima, M C.** (1971), "Consumption-Investment Frontier, Wage-Profit Frontier and the von Neumann Growth Equilibrium", *Zeitschnft Fur Nationalokonomie*, Supplement 1, pp. 31-35.
- Neumann, J. von** (1945-1946), "A Model of General Equilibrium", *Review of Economic Studies*, Vol. 13(33), pp. 1-9.
- Pasinetti, Louigi L.** (1962), "Rate of Profit and Income Distribution in Relation to the Rate of Economic Growth", *Review of Economic Studies*. Vol. 29, pp.267-279.
- Robinson, Joan** (1954), "The Production Function and the Theory of Capital". *Review of Economic Studies*, Vol. 21, pp. 51-106.
- Stigler, G. J.** (1965), *Production and Distribution Theories: The Formative Period*, Agathon Press, Inc., New York.
- Walras, Leon** (1926), *Elements d'Economie Politique Pure*, Lausanne.
- Wicksell, Knut** (1901), *Lectures on Political Economy*, (English translation). London, 1934.